



Annex M North Tahoe Public Utility District

M.1 Introduction

This is a new participating jurisdiction to the Local Hazard Mitigation Plan process.

This Annex details the hazard mitigation planning elements specific to the North Tahoe Public Utility District (North Tahoe PUD), a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the North Tahoe PUD, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

M.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table M-1. Additional details on plan participation and District representatives are included in Appendix A.

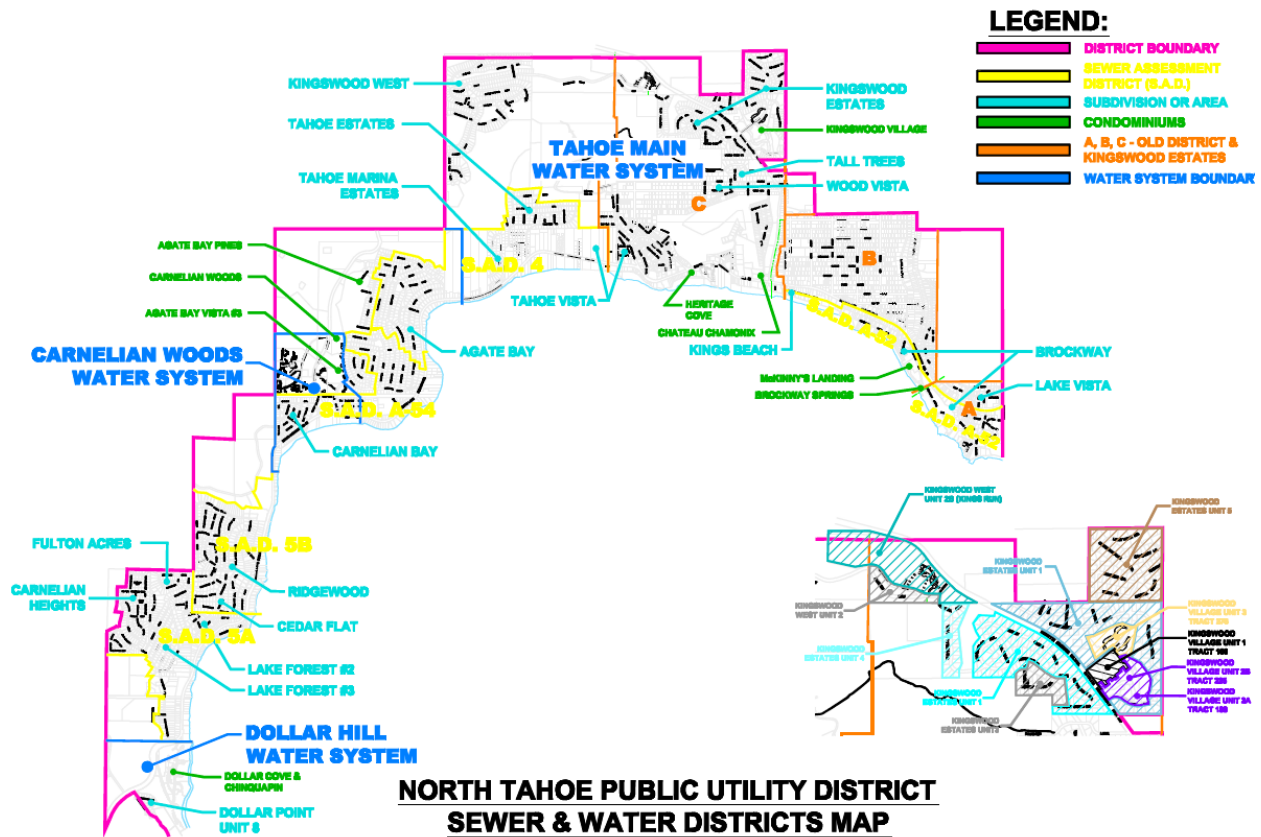
Table M-1 District Planning Team

Name	Position/Title	How Participated
Suzi Gibbons	Contracts and Planning Coordinator	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex. Provided logo and base map.
Will Stelter	Engineering and Operations Manager	Provided input on hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Larry Marple	Chief Financial Officer	Provided input on past hazards.

M.3 District Profile

The North Tahoe PUD service area is illustrated in Figure M-1.

Figure M-1 North Tahoe PUD



Source: North Tahoe PUD

M.3.1. District Information and Background

The North Tahoe Public Utility District (NTPUD) was formed in 1948 under the State of California Public Utilities Code to provide sewer services to the residents of the north shore of Lake Tahoe. The District’s boundaries range from the Nevada state line in Crystal Bay to Dollar Hill. Our service area includes the communities of Kings Beach, Tahoe Vista, Brockway Vista, Carnelian Bay, Cedar Flat and Agate Bay.

In November of 1967, water services were added to the District’s responsibility with the Recreation and Parks Department being created in 1968. The District manages and maintains most of the public beaches in our service area as well as the North Tahoe Regional Park in Tahoe Vista.

The North Tahoe Event Center is also owned and managed by the District. The District currently serves 5,524 sewer connections and 3,879 metered water connections.

M.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table M-2).

Table M-2 North Tahoe Public Utility District Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Limited	Unlikely	Negligible	Low
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Highly Likely	Limited	Medium
Earthquake	Significant	Unlikely	Limited	Medium
Flood: 100/500 year	Significant	Unlikely	Limited	High
Flood: Localized Stormwater Flooding	Significant	Occasional	Limited	Medium
Landslides and Debris Flows	Significant	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Limited	Medium
Severe Weather: Extreme Heat	Limited	Unlikely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Limited	Unlikely	Negligible	Low
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Limited	Occasional	Limited	Medium
Soil Bank Erosion	Limited	Occasional	Limited	Medium
Subsidence	Limited	Unlikely	Negligible	Low
Wildfire	Limited	Occasional	Limited	Medium
Hazardous Materials Transport	Limited	Unlikely	Negligible	Low
Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		Magnitude/Severity Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid		
Probability of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.		Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact		

M.5 Vulnerability Assessment

The intent of this section is to assess the District’s vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

M.5.1. Assets at Risk

This section considers the District’s assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table M-3 lists District assets identified by representatives from the District as important to protect in the event of a disaster.

Table M-3 North Tahoe Public Utility District—Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Base Administration Facilities	District Operations Base	875 National Ave., Tahoe Vista, CA	\$4,706,529	
National Avenue Water Treatment Plant	Potable Water Intake & Treatment Plant	7010 North Lake Blvd., Tahoe Vista, CA	\$2,291,919	Seiche Flood Drought
Park Well	Potable Water Well and Emergency Generator	6600 Donner Rd., Tahoe Vista, CA	\$176,371	Wildfire Drought
Park Tank	Potable Water Tank	6600 Donner Rd., Tahoe Vista, CA	\$175,000	Wildfire
Carnelian Woods Well	Potable Water Well	Carnelian Woods Ave., Carnelian Bay, CA	\$195,000	Wildfire Drought
Carnelian Woods Tank I	Potable Water Tank	End of Silver Pine Dr., Carnelian Bay, CA	\$249,000	Wildfire
Carnelian Woods Tank II	Potable Water Tank & Booster Pump Station	End of Silver Pine Dr., Carnelian Bay, CA	\$293,800	Wildfire
Dollar Hill Tank	Potable Water Tank	Top of Dollar Hill, Tahoe City, CA	\$276,500	Wildfire
Dollar Cove Water Intake	Potable Water Intake & Pump House	3600 North Lake Blvd., Carnelian Bay, CA	\$85,800	Soil Bank Erosion Drought
Brockway Water Intake	Potable Water Intake & Pump House	Brockway Rd., Kings Beach, CA	\$75,000	Soil Bank Erosion Drought Seiche
Kings Beach Tank	Potable Water Tank	Beaver St., Kings Beach, CA	\$749,000	Wildfire
Zone 1 Tank	Potable Water Tank & Booster Pump Station	1001 Canterbury Dr., Kings Beach, CA	\$1,200,000	Wildfire
Zone 2 Tank	Potable Water Tank	1050 Lake Vista Rd., Kings Beach, CA	\$600,000	Wildfire
Kingswood West Water Tank	Potable Water Tank	1392 Kings Vista Ct., Tahoe Vista, CA	\$600,000	Wildfire

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Kingswood West Booster Pump Station	Potable Water Booster Pump Station	9611 Regency Way, Tahoe Vista, CA	\$180,600	Wildfire
Secline Sewer Pump Station	Sewer Pump Station	121 Secline St., Kings Beach, CA	\$685,000	Severe Weather Flood: Localized Stormwater Flooding Seiche
National Sewer Pump Station	Sewer Pump Station	7010 North Lake Blvd., Tahoe Vista, CA	\$650,600	Severe Weather Flood: Localized Stormwater Flooding Seiche
Carnelian Sewer Pump Station	Sewer Pump Station	255 Onyx St., Carnelian Bay, CA	\$743,800	Severe Weather Flood: Localized Stormwater Flooding
Dollar Sewer Pump Station	Sewer Pump Station	3630 North Lake Blvd., Carnelian Bay, CA	\$2,188,000	Severe Weather Flood: Localized Stormwater Flooding
S1, S2, N2, C1, D1, D2, D3, D4, D5, D6, D7 Satellite Sewer Pump Stations	Model 15 and Model 16 Satellite Sewer Pump Stations	Various locations from Stateline at Crystal Bay to Dollar Point	Model 15: \$64,150/ea Model 16: \$101,350/ea	Severe Weather
N1 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	Tahoe Vista, CA	\$136,350	Severe Weather
N3 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	Tahoe Vista, CA	\$172,700	Severe Weather
C2 Satellite Pump Station	Model 16 Satellite Sewer Pump Station with Backup Generator	5000 North Lake Blvd., Carnelian Bay, CA	\$181,350	Severe Weather
North Tahoe Event Center	Community Conference Center & Emergency Evacuation Shelter	8318 North Lake Blvd., Kings Beach, CA	\$2,405,000	Severe Weather (wind) Seiche Flood
Tahoe Vista Recreation Area	Beach & Facilities, Boat Launch, & Parking Areas	7010 North Lake Blvd., Tahoe Vista, CA	\$3,264,703	Severe Weather Seiche Flood
Secline Beach Park	Park	South end of Secline St., Kings Beach, CA	\$10,000	
North Tahoe Regional Park	Park with numerous amenities	6600 Donner Rd., Tahoe Vista, CA	\$1,119,859	Wildfire

Source: North Tahoe PUD

Growth and Development Trends

Population growth and development trends within District boundaries are covered in Section 4.3.2 of the main plan and in the individual annexes of the incorporated communities falling within the service area of the District.

M.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table M-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Drought and Water Shortage

Likelihood of Future Occurrence—Highly Likely

Vulnerability—Medium

As a public water purveyor, droughts and water shortages may have an impact on the District's well water levels during prolonged drought conditions. It is doubtful it would have an impact on the District's lake intake due to the length of the intake and the District's pumps are submersible.

Earthquake

Likelihood of Future Occurrence—Unlikely

Vulnerability–Medium

The District has a number of critical facilities that may be vulnerable to Earthquakes. A seismic study will help determine which facilities and an approach for retrofit.

Flood: 100/500 year

Likelihood of Future Occurrence–Unlikely

Vulnerability–High

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a 100/500 year storm. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District’s water treatment plant is on the shoreline underground, making it susceptible to flooding during a 100/500 year storm. Power outages would also affect the District’s ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during localized stormwater flooding. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District’s water treatment plant is on the shoreline underground, making it susceptible to flooding during localized stormwater flooding. Power outages would also affect the District’s ability to keep sewer and water pump stations operational, which would have an impact on District customers.

From December 31, 2005 to January 6, 2006, severe flooding occurred in the North Tahoe PUD area. There was snow on the ground in the area at the time of a rain. The rain on snow event caused mild to moderate flood damage in the area. It was considered a 50-year flood event. State Highway 28 was closed due to flooding. Fortunately, schools were already closed for the Christmas holiday. The North Tahoe PUD received reimbursement of \$37,768 from State OES for staff time (regular and overtime) and equipment costs to keep sewer and water pump stations operational during power outages. The HMPC noted that there is a high likelihood of reoccurrence, depending on weather conditions. Additional/alternative fuel supplies should be considered for these types of catastrophic events. All local gas stations ran out of fuel (regular and diesel) and gas trucks were not able to get into the area due to week-long road closures on Interstate 80.

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

The District has a wooden structure, water booster pump station in a low-lying area that may be at risk during a land slide. This booster pump station boosts water up to a 500,000 water storage tank that is the only water supply for a large subdivision with only one road for ingress/egress.

The District also has gravity and force sewer mains over creek crossings that are vulnerable to debris flows. During the 1996/97 rain on snow event, Watson creek was overflowing and eroded the ground around one of the District's sewer force mains. The sewer force main was hanging precariously under the roadway until repairs to support the force main could be done.

Seiche (Lake Tsunami)

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a seiche. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during a seiche. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Freeze and Snow can cause small water mains to break which affects water services in the surrounding neighborhood. Freeze and snow can also cause power outages which would affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

The District has a number of critical sewer and water facilities near the shoreline of Lake Tahoe that may be subject to flooding during a Severe Weather event. Floodwaters could inundate the sewer pump stations, making it difficult to keep up with pumping the sewage out of the Tahoe Basin. Likewise, the District's water treatment plant is on the shoreline underground, making it susceptible to flooding during a Severe Weather event. Power outages would also affect the District's ability to keep sewer and water pump stations operational, which would have an impact on District customers.

Soil Bank Erosion

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

The District has two inactive lake intakes in areas where soil bank erosion occurs. The District desires to rehabilitate these intakes for potable water redundancy and fire protection. Stabilization will need to be a key factor to be able to bring these intakes and supporting infrastructure back on-line.

Wildfire

Likelihood of Future Occurrence–Occasional

Vulnerability–High

The District has several assets that would be at risk during a wildfire due to the location and wooden structures. These assets include the North Tahoe Regional Park, the Park Well, Kingswood West Booster Pump Station, and the Carnelian Well. Wildfire would also cut off access to critical water infrastructure which could impact the District’s ability to provide safe drinking water and fire protection.

M.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

M.6.1. Regulatory Mitigation Capabilities

Table M-4 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table M-4 North Tahoe Public Utility District’s Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Sewer – 1991 Water - 1999	Can be used to implement mitigation actions, but needs to be updated. These are more planning documents
Capital Improvements Plan	2015	Five-year plan updated each fiscal year.
Economic Development Plan	n/a	County
Local Emergency Operations Plan	2005	The ERP addresses hazards and risks. Never adopted; needs to be updated.
Continuity of Operations Plan	No	
Transportation Plan	n/a	County
Stormwater Management Plan/Program	n/a	County

Engineering Studies for Streams	n/a	County
Community Wildfire Protection Plan	n/a	Fire District
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Yes	Sanitary Sewer Management Plan Urban Water Management Plan
Building Code, Permitting, and Inspections	Y/N	Are codes adequately enforced?
Building Code	n/a	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	n/a	Score:
Fire department ISO rating:	n/a	Rating:
Site plan review requirements	Yes	District Ordinances are adequately enforced for sewer & water
Land Use Planning and Ordinances	Y/N	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	n/a	
Subdivision ordinance	n/a	
Floodplain ordinance	n/a	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	n/a	
Flood insurance rate maps	n/a	
Elevation Certificates	n/a	
Acquisition of land for open space and public recreation uses	n/a	
Erosion or sediment control program	n/a	
Other	n/a	
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

5-Year CIP: The District has a rolling 5-Year CIP plan for sewer and water capital projects that is updated annually. The District has a rate structure in place to be able to do \$577,000 in sewer capital replacement projects and \$842,000 in water capital replacement projects each year.

Sanitary Sewer Management Plan (SSMP): As a requirement of the District’s State Water Resources Control Board Waste Discharge Permit, the Board has adopted an SSMP. The plan sets the goals to maintain the District’s sewer collection system.

The goals are to:

- Properly manage, operate, and maintain all parts of the wastewater collection system
- Provide adequate capacity to convey peak flows
- Minimize the frequency of SSOs
- Mitigate impacts of SSOs
- Justify appropriate funding levels to support the program objectives
- Meet all applicable regulatory notification and reporting requirements

Urban Water Management Plan (UWMP): The State of California Urban Water Management Planning Act (Act) requires each urban water supplier with 3,000 or more connections, or which supplies at least 3,000 acre-feet per year (AFY) of water, to submit UWMPs to the California Department of Water Resources (DWR) every five years. The District has approximately 3,872 connections.

The UWMP Act requires urban suppliers to report, describe, and evaluate water deliveries and uses, water supply sources, efficient water uses, and demand management measures (DMMs), including implementation schedule and strategy. The purpose of developing an UWMP is to evaluate whether a water supplier can meet the water demands of its water customers as projected over a 20- or 25-year period. The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. This evaluation is accomplished through analysis of current and projected water supply and demand for normal or average conditions, as well as during water shortages.

M.6.2. Administrative/Technical Mitigation Capabilities

The Board is comprised of 5 members and is selected by registered voters within the District. The Board serves as the governing body for the District’s residents. The Board of Directors approves District Rules and Regulations and, through the General Manager, ensures adherence to District policies. Table M-5 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table M-5 North Tahoe Public Utility District’s Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	n/a	
Mitigation Planning Committee	n/a	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	n/a	
Mutual aid agreements	Yes	Mutual Aid agreement in place for Truckee-Tahoe area sewer and water agencies.
Other	n/a	

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	n/a	
Floodplain Administrator	n/a	
Emergency Manager	n/a	
Community Planner	n/a	
Civil Engineer	Yes	Staffing is adequate; trained on sewer/water emergencies; coordination is effective.
GIS Coordinator	Yes	n/a
Other	n/a	
Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	No	We are looking into the capability for reverse 911.
Hazard data and information	No	
Grant writing	Yes	We have limited staff and time to write grants; but take advantage of grant opportunities as they arise.
Hazus analysis	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Increase staffing will give us the ability to improve in areas that pertain to NTPUD but are lacking.		

M.6.3. Fiscal Mitigation Capabilities

Table M-6 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table M-6 North Tahoe Public Utility District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	Limited funding; grants help with being able to do more Capital projects.
Authority to levy taxes for specific purposes	Yes	Limited capability; mostly for sewer and recreation.
Fees for water, sewer, gas, or electric services	Yes	Water and sewer fees are currently used for Capital improvements as funding allows.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Impact fees for new development	n/a	
Storm water utility fee	n/a	
Incur debt through general obligation bonds and/or special tax bonds	Yes	We have incurred debt in the past with bonds and loans for Capital projects.
Incur debt through private activities	n/a	
Community Development Block Grant	n/a	
Other federal funding programs	Yes	Have received funds through the Lake Tahoe Restoration Act for fire protection. Funds have been limited in recent years.
State funding programs	Yes	Have received funds for various recreation projects. Funds are limited for mitigation actions.
Other		
How can these capabilities be expanded and improved to reduce risk?		

M.6.4. Mitigation Outreach and Partnerships

Table M-7 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table M-7 North Tahoe Public Utility District Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	n/a	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	We have on-going public education and outreach programs in place for reducing water use (irrigation) due to current drought.
Natural disaster or safety related school programs	n/a	
StormReady certification	n/a	
Firewise Communities certification	n/a	

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Public-private partnership initiatives addressing disaster-related issues	n/a	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Increase interaction with County and Fire District to increase messaging.		

M.6.5. Other Mitigation Efforts

The District has performed other mitigation projects over the years which include:

- Fuels reduction in the North Tahoe Regional Park
- Constructed a 500,000 gallon water storage tank
- Constructed a 1.3 million gallon water storage tank
- Upsized the Carnelian Bay West water system from 2” water mains to 8” water mains and installed numerous hydrants for fire protection
- Rehabilitated 2 of the 4 main sewer pump stations
- Rehabilitated the 22” Dollar sewer force main for redundancy and to allow for maintenance of the 16” Dollar sewer force main

M.7 Mitigation Strategy

M.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

M.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Update SCADA Equipment and Telecommunications Infrastructure

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD’s existing SCADA and Telecommunications infrastructure need to be update and replaced in order to sufficiently operate the sewer collection and water production systems.

Other Alternatives: No acceptable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD maintains a SCADA Master Plan. Implementation will be through the NTPUD Capital Improvement Program and schedule.

Responsible Office/Partners: NTPUD Engineering and Operations departments.

Project Priority: High

Cost Estimate: \$150,000

Benefits (Losses Avoided):

- Insure timely notification of current conditions at remote sewer and water sites
- Insure communications with the public and stakeholders as required
- Insure IT and telecommunications resources and work location are available in the area in the event of an emergency.
- Insure that personnel working in the EOC can communicate with field workers and others

Potential Funding: NTPUD Capital Improvement Program

Timeline: 1-3 Years

Action 2. *IT and Telecommunications Improvements for Disaster Preparedness*

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD's existing IT and telecommunications infrastructure need improvements in order to sufficiently operate as a satellite Emergency Operations Center.

Other Alternatives: Alternatives would be to depend on the local Fire District and County Office of Emergency Services in emergency situations.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD is a member of the Truckee North Tahoe Joint Information Response Team. Planning is ongoing with that Team and the needs of the Team will be included when planning infrastructure improvements. Implementation would be determined on other agency funding and participation.

Responsible Office/Partners: NTPUD IT and Public Information Administrator in coordination with other agencies in the Tahoe-Truckee region.

Project Priority: Medium

Cost Estimate: \$50,000

Benefits (Losses Avoided):

- Insure timely and appropriate response to emergencies
- Insure communications with the public and stakeholders as required

- Insure IT and telecommunications resources and work location are available in the area in the event of an emergency.
- Insure that personnel working in the EOC can communicate with field workers and others

Potential Funding: NTPUD Administration funds are insufficient. Potential funding from Placer County OES.

Timeline: 3-5 Years

Action 3. Update Emergency Response Plan

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: NTPUD's Emergency Response Plan needs to be updated to include response for Sanitary Sewer Overflows, Potable Water Emergencies, Threats to Critical Facilities, Information Technology failures and incidents and creation of an Emergency Communications Plan with District public outreach tools.

Other Alternatives: There are no viable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD's ERP is insufficient in related to tools and assets available for emergency public information communications and is in need of updating for other emergencies as well as including information technology systems and emergency plans. Implementation would be within 6 months of grant approval.

Responsible Office/Partners: NTPUD Engineering and Operations in coordination with other agencies in the Tahoe-Truckee region.

Project Priority: Medium/High

Cost Estimate: \$50,000

Benefits (Losses Avoided):

- Insure timely and appropriate response to emergencies
- Insure communications with the public and stakeholders as required
- Conduct evacuation and shelter planning updates to include all critical hazards
- Outreach to residents, 2nd home owners, and hotels with available tools and communication techniques and make sure they know where to go for information.
- Add information technology emergency response plans and systems and identify other risks to be mitigated related to information technology.

Potential Funding: NTPUD Operations funds

Timeline: 1-3 Years

Action 4. Backup Generator Installation at Critical Facilities

Hazards Addressed: Emergency Services/Multiple Hazards

Issue/Background: During power outages for various hazards, the NTPUD does not have backup generators or has insufficient sized backup generators for our critical facilities. The critical facilities include:

- NTPUD Base Facilities – This facility is a satellite Emergency Operation Center. It has an undersized, portable generator that cannot power the entire building during power outages.
- North Tahoe Event Center – This facility is an Emergency Evacuation Center. There is no generator for this facility.
- National Sewer Pump Station – This facility is one of four of the NTPUD’s main sewer pump station. The facility is located on the shores of Lake Tahoe. The existing generator cannot effectively power both the Sewer Pump Station and the Water Treatment Plant at the same site.
- Carnelian Sewer Pump Station – This facility is located next to a culvert that flows directly to Lake Tahoe. The existing generator was built circa 1960 and does not meet current Air Quality standards.

Other Alternatives: There are no viable alternatives to these critical facilities

Existing Planning Mechanism(s) through which Action Will Be Implemented: NTPUD either has or will soon have the generators sized. Implementation would be within 6 months of grant approval.

Responsible Office/Partners: NTPUD Engineering

Project Priority: Medium/High

Cost Estimate: \$200,000 per generator, \$800,000 total

Benefits (Losses Avoided):

- Emergency power to serve the community
- Avoid sanitary sewer overflow into Lake Tahoe
- Ensure quality drinking water

Potential Funding: NTPUD Capital Improvement Program Funds, ARB funds

Timeline: 1-3 Years

Action 5. Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park

Hazards Addressed: Wildfire

Issue/Background: NTPUD’s water tanks and booster pump stations are located in heavily forested areas. Most of the water booster pump stations are within wooden structures. The risk of infrastructure failure during a catastrophic wildfire is unacceptable.

The North Tahoe Regional Park is heavily wooded and adjacent to three subdivisions and is in need of fuels reduction for public safety. Also, NTPUD has a water well and tank within the NTRP.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD; North Tahoe Fire Protection District

Project Priority: Medium

Cost Estimate: \$75,000 per year

Benefits (Losses Avoided): Minimize damage due to catastrophic wildfire

Potential Funding: None identified

Timeline: 5-10 Years

Action 6. *Kingswood West Subdivision Emergency Evacuation Access*

Hazards Addressed: Wildfire

Issue/Background: The Kingswood West subdivision has only one road for ingress/egress which goes through two other subdivisions. Through property owned by the CTC, USFS, and NTPUD, the potential may exist to develop an emergency access road through the North Tahoe Regional Park or other areas.

Other Alternatives: None researched

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: Placer County; North Tahoe Fire Protection District; NTPUD; CTC; USFS

Project Priority: Low

Cost Estimate: Unknown.

Benefits (Losses Avoided): Minimize injury/death during emergency evacuations due to catastrophic wildfire

Potential Funding: None identified

Timeline: 10-20 Years depending on feasibility

Action 7. *North Tahoe Regional Park Road Improvements for Emergency Access*

Hazards Addressed: Wildfire

Issue/Background: The North Tahoe Regional Park is heavily wooded and is heavily used by the public seeking outdoor, mountainous recreation. The existing dirt roads have insufficient access for fire suppression equipment. This project would improve and pave existing dirt roads for fire truck access to NTPUD critical infrastructure, US forest lands, and emergency evacuation.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD; North Tahoe Fire Protection District

Project Priority: Medium

Cost Estimate: \$500,000

Benefits (Losses Avoided): Minimize damage due to catastrophic wildfire

Potential Funding: None identified

Timeline: 5-10 Years

Action 8. *Seismic Study and Retrofit of Critical Infrastructure*

Hazards Addressed: Earthquake

Issue/Background: A seismic study of NTPUD's critical infrastructure has never been done to insure all critical infrastructure is seismically sound. The infrastructure to be studied would be all water tanks constructed prior to 1990 and the 4 main sewer pump stations.

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: None existing

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Medium

Cost Estimate:

- \$100,000 for the study
- \$75,000 for each water tank retrofit
- \$250,000 for each main sewer pump station

Benefits (Losses Avoided):

- Prevent essential water service loss to community
- Prevent sanitary sewer overflows to Lake Tahoe due to infrastructure failure

Potential Funding: Future NTPUD CIP funds

Timeline: 5-10 Years

Action 9. Sewer Main Replacements in Shorezone of Lake Tahoe

Hazards Addressed: Earthquake; Flood

Issue/Background: The NTPUD has approximately 5 miles of sewer mains that are within or immediately adjacent to the shorezone of Lake Tahoe. The NTPUD also has two main sewer pump stations and a number of small, satellite pump stations adjacent to the shorezone of Lake Tahoe. The long-term goal of the Lake Tahoe Basin Framework Study would be to relocate these facilities to the State Highway where the risk of sanitary sewer overflows reaching Lake Tahoe would be minimized to the NTPUD.

The downside of relocating NTPUD's facilities is that private property owners would need to install individual sewer pump stations in order to connect to the relocated NTPUD sewer mains, where preventive maintenance would be the responsibility of the individual property owners.

Other Alternatives: Keep NTPUD's sewer mains and pump stations in their current location.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Lake Tahoe Basin Framework Study

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Low

Cost Estimate: \$20,000,000

Benefits (Losses Avoided): Minimize sanitary sewer overflows to Lake Tahoe due to NTPUD infrastructure failure.

Potential Funding: None identified

Timeline: 20 Years

Action 10. Water Booster Pump Station Rehabilitation/Replacement

Hazards Addressed: Wildfire

Issue/Background: NTPUD's water booster pump stations are located in heavily forested areas. Most of the water booster pump stations are within wooden structures. The risk of infrastructure failure during a catastrophic wildfire is unacceptable. This project would either rehabilitate the wooden structures using fire resistant materials or replacing the wooden structures with either underground booster stations or concrete buildings.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: None

Responsible Office/Partners: NTPUD

Project Priority: Medium

Cost Estimate: \$250,000 per station

Benefits (Losses Avoided): Prevent essential water service loss to community

Potential Funding: None identified

Timeline: 5-10 Years

Action 11. Increased Storage Capacity for Dollar Cove Water System

Hazards Addressed: Wildfire; Drought; Water Supply

Issue/Background: The existing water 350,000 gallon storage tank for NTPUD's Dollar Cove system has enough capacity for typical residential daily use, but additional storage for fire suppression and during droughts is needed. This project would increase the storage capacity to 500,000 by either an additional 150,000 tank or replacing the tank.

Other Alternatives: None.

Existing Planning Mechanism(s) through which Action Will Be Implemented: None existing

Responsible Office/Partners: NTPUD Planning and Engineering Department

Project Priority: Low

Cost Estimate: \$750,000

Benefits (Losses Avoided):

- Insure sufficient potable water supply during severe droughts where and when needed.
- Insure sufficient water supply for fire suppression.

Potential Funding: Future NTPUD CIP funds

Timeline: 5-10 Years

Action 12. Water System Interties

Hazards Addressed: Drought; Water Supply

Issue/Background: The existing water system interties between the public and private water companies is insufficient to provide reliable potable water supplies in the event of severe drought, fire suppression, and storage.

Other Alternatives: There are no viable alternatives.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Placer County Water Agency conducted a study to install large diameter water mains and interties within the State rights-of-way.

Responsible Office/Partners: NTPUD, TCPUD, North Tahoe Fire District, PCWA, various private water companies.

Project Priority: Medium

Cost Estimate: \$30 to \$40 million

Benefits (Losses Avoided):

- Insure sufficient potable water supply during severe droughts where and when needed.
- Insure sufficient water supply and flow for fire suppression.

Potential Funding: Placer County Water Agency

Timeline: 5-10 Years